

REMARKS

The application has been reviewed in light of the Office Action dated March 22, 2005. Claims 1-23 are pending, with claims 1, 6-9, 15 and 18-23 being in independent form.

Claims 9, 10, 12, 14, 15 and 17-23 were rejected under 35 U.S.C. §102(b) as purportedly anticipated by Japanese Patent Application Publication No. JP 2002-67303A (Inoue). Claims 11 and 13 were rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Inoue in view of Japanese Patent Publication No. JP 2002-240282A (Yamanaka). Claim 16 was rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Inoue in view of Japanese Patent Publication No. JP 2000-299991A (Kitahara).

Applicant has carefully considered the Examiner's comments and the cited art, and respectfully submits that independent claims 9, 15 and 18-23 are also allowable over the cited art, for at least the following reasons.

This application relates to improvements to ink-jet recording, including an electrostatic actuator having stable operational characteristics obtained by preventing a deformable plate from sticking to the opposing side in a pressure correcting chamber without increasing head size

For example, independent claims 9 and 15 recite some configurations of an electrostatic actuator with such features. Specifically, the claimed invention of independent claim 9 includes a part that reduces an area of contact formed when the deformable part comes into contact with a second side of the pressure correcting chamber, the second side opposing the deformable part. Independent claims 18, 20 and 22 recite a liquid droplet ejecting head, an ink-jet recording apparatus and a liquid supply cartridge, respectively, having similar features.

On the other hand, the claimed invention of independent claim 15 includes a sticking preventing part formed on a second side of the pressure correcting chamber so as to prevent the deformable part from sticking to the second side when the deformable part comes into contact

therewith, the second side opposing the deformable part. Independent claims 19, 21 and 23 recite a liquid droplet ejecting head, an ink-jet recording apparatus and a liquid supply cartridge, respectively, having similar features.

It is contended in the Office Action that the above-described features recited in independent claims 9 and 15 are disclosed in the Abstract and Figs. 1-3 of Inoue, although the Office Action does not identify any specific correspondence as between these features of independent claims 9 and 15 and counterpart elements of Inoue.

In Fig. 1(c) of Inoue, a projection-like member (minute projection stoppers 29) is formed. According to paragraph [0020] of Inoue, the minute projection stoppers 29 are formed on the surface of a thin film movable electrode 22 so as to prevent the thin film movable electrode 22 from coming into contact and short-circuiting with a thin film fixed electrode 26, even when a diaphragm 19 is greatly displaced.

Accordingly, Applicant submits that the minute projection stoppers 29 of Inoue do not (i) reduce an area of contact formed when the deformable part comes into contact with a second side of the pressure correcting chamber, the second side opposing the deformable part, as provided by the claimed invention of independent claims 9, 18, 20 and 22, or (ii) prevent the deformable part from sticking to the second side when the deformable part comes into contact therewith, the second side opposing the deformable part, as provided by the claimed invention of independent claims 15, 19, 21 and 23.

Further, Applicant does not find disclosure or suggestion in Inoue of a pressure correcting chamber.

In addition, according to [0020] of Inoue, Inoue assumes displacement of the diaphragm 19, and proposes a technique for preventing the thin film movable electrode 22 from coming into contact and short-circuiting with a thin film fixed electrode 26 when the diaphragm 19 is greatly

displaced. Therefore, one of skill in the art would not find suggestion in Inoue of a configuration for preventing displacement according to the claimed invention.

The distance between the deformable plate and its opposing side of the pressure correcting chamber does not necessarily have to be reduced. If such distance is not small, it is possible to provide a configuration where the deformable plate does not come into contact with its opposing side. However, this may result in an increase in head size. However, such head size increase can be averted by employing a configuration such as recited in, for example, independent claim 9 or 15. Both the objectives and the configuration of the claimed invention are different from Inoue.

Yamanaka, as understood by Applicant, is directed to a liquid drop discharge head which allegedly is low in cost and high in reliability. Yamanaka was cited in the Office Action only against dependent claims 11 and 13, as purportedly disclosing a projection formed of a material selected from a group consisting of silicon oxide and nitride oxide.

Kitahara, as understood by Applicant, is directed to an electrostatic actuator adapted to restrict occurrence of adhesion of counter electrodes and overlap of hydrophobic films formed on the surfaces of the electrodes. Kitahara was cited only against dependent claim 16 in the Office Action.

Applicant does not find teaching or suggestion in the cited art, however, of an electrostatic actuator including (a) a part that reduces an area of contact formed when the deformable part comes into contact with a second side of the pressure correcting chamber, the second side opposing the deformable part, as provided by the claimed invention of independent claims 9, 18, 20 and 22, or (b) a sticking preventing part formed on a second side of the pressure correcting chamber so as to prevent the deformable part from sticking to the second side when the deformable part comes into contact therewith, the second side opposing the deformable part,

as provided by the claimed invention of independent claims 15, 19, 21 and 23.

Accordingly, for at least the above-stated reasons, Applicant respectfully submits that independent claims 9, 15 and 18-23 and the claims depending therefrom are patentable over the cited art.

The Office Action indicates that claims 1-8 are allowed.

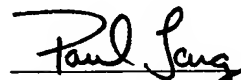
Applicant appreciates the Examiner's statement of reasons for allowance in the Office Action and submits that the allowed claims recite subject matter which further supports patentability for reasons in addition to those identified in the Examiner's statement of reasons for allowance in the Office Action.

In view of the amendments to the claims and remarks hereinabove, Applicant submits that the application is now in condition for allowance. Accordingly, Applicant earnestly solicits the allowance of the application.

If a petition for an extension of time is required to make this response timely, this paper should be considered to be such a petition. The Office is hereby authorized to charge any fees that may be required in connection with this response and to credit any overpayment to our Deposit Account No. 03-3125.

If a telephone interview could advance the prosecution of this application, the Examiner is respectfully requested to call the undersigned attorney.

Respectfully submitted,



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